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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/868,262	01/03/2002	Stephen Karl Heeks	C1043/7034	7553
22852	7590	04/07/2004	EXAMINER	
FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP 1300 I STREET, NW WASHINGTON, DC 20005			GUHARAY, KARABI	
			ART UNIT	PAPER NUMBER
			2879	

DATE MAILED: 04/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/868,262

Applicant(s)

HEEKS ET AL.

Examiner

Karabi Guharay

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on RCE, filed 2/23/04.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 10-12,20-22 and 33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 10-12,20-22 and 33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>01/26/04</u> . | 6) <input type="checkbox"/> Other: _____  |

***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 02/23/04 has been entered.

Amendment, filed on 02/23/04 has been entered and considered.

IDS, filed on 1/26/04, has been considered and signed copy is attached.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 10-12, 20, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harvey III et al. (US 5686360), in view of Ito et al. (US 5652067).

Regarding claim 10, Harvey discloses an organic light emitting device (20 of Fig 4) comprising a layer of light emission material 14 (Fig 2) interposed between a first

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electrode 13 (anode) and second electrode 15 (cathode), comprising one or more electrode layers on the light emissive organic material for injecting charge carriers into the light emissive organic material (lines 9-13 of column 4), wherein the OLED further has a sealing system (22) forming a stack comprising a first inert barrier layer 28 and another layer 26 (second layer in the buffer system, Fig 4) interposed between the outer electrode 15 and the first inert barrier layer (28) for absorbing moisture and oxygen (lines 55-66 of Col.5).

But Harvey does not disclose SiO as a material for the second layer instead used silicon dioxide layer.

However, Ito et al. teaches that metal oxides such as SiO<sub>2</sub>, SiO, GeO, ZNO etc are preferable materials for the sealing of cathode of an organic EL device (lines 30-38 for their excellent gas and moisture barrier property.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use SiO instead of SiO<sub>2</sub> as the material for the second buffer layer 26 of Harvey's device, since these are art recognized equivalent, as taught by Ito et al., for the purpose of barrier /sealing material for the EL device.

Regarding claim 11, Harvey discloses that the first inert barrier layer 28 is selected from the group consisting of AlN, SiO<sub>2</sub>, Si<sub>3</sub>N<sub>4</sub> and Al<sub>2</sub>O<sub>3</sub> (lines 60-61 of column 5).

Regarding claims 12 & 20, Harvey discloses that thicknesses of the each layer are too thin (lines 60-63 of column 3) but fail to disclose the claimed range of thickness. However, it would have been obvious to one having ordinary skill in the art at the time

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the invention was made to obtain the desired range, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

Regarding claim 33, Harvey fails to disclose that the first inert barrier layer 28 is a layer of AlN, instead discloses other dielectric material such as silicon nitride. Dielectric materials such as silicon dioxide, silicon nitride, aluminum nitride (AlN) are art recognized equivalent materials for passivation layer, thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use AlN, instead of silicon nitride for the first inert barrier layer, since it has been held to be within the general skill of an worker in the art to select a known material on the basis of its suitability for the intended use.

Claims 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harvey III et al. and Ito et al. as applied to claim 10 above, further in view of Hung et al. (US 5776622).

Regarding claims 21-22, Harvey and Ito et al. disclose all the claimed limitation of claim 21(see rejection of claim 10) except that the one of first and second electrodes is a multi-layered electrode comprising a first low work function conductive layer on the light emissive layer and a second conductive layer on the first layer. However, Hung teaches to have multi-layered cathode in an organic EL device having a first low work function conductive layer of calcium having a thickness 200nm or less, on the light emitting layer and a second conductive layer of aluminum having a thickness of 5 micron or less (lines 21-27 of column 5, and line 1 of column 5, and claim 2),as claimed

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in claim 22. This multi-layer cathode provides stability against atmospheric corrosion (see abstract).

Thus it would have been obvious to one having ordinary skill in the art at the time the invention was made to introduce multi-layered cathode in the device of Harvey in order to obtain stability against atmospheric corrosion.

### ***Response to Arguments***

Applicant's arguments filed 2/23/04 have been fully considered but they are not persuasive.

Applicant contends that the SiO layer together with other inert barrier layer provides excellent protection for the electrode. However, Ito teaches that SiO is a preferable material for the protection of electrode of an EL device, so used as a sealing layer above the electrode.

Applicant believes that excellent protection is due to the action of SiO as a gettering layer.

Combined structure of Harvey and Ito et al. provides the claimed structure. However, though function of gettering is not mentioned in the prior art, it is inherent, since function follows the form.

Moreover, it is elementary that mere recitation of a newly discovered function or property, inherently possessed by things in the prior art, does not cause a claim drawn to distinguish over the prior art. Additionally, where the Patent office has the reason to believe that a functional limitation asserted to be critical for establishing novelty in the claimed subject matter may, in fact, be an intrinsic characteristic of the prior art, it

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possesses the authority to require the applicant to prove that the subject matter shown to be in the prior art does not possess the characteristic relied on.

***Other Prior Art Cited***

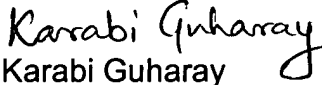
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure : Jones (US 5920080).

***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karabi Guharay whose telephone number is (571) 272-2452. The examiner can normally be reached on Monday-Friday 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (571) 272-2457. The fax phone number for the organization is (703) 308-7382.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

  
Karabi Guharay  
Patent Examiner  
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